Houston-White Company Mill and Basket Factory, 1905 HAER DE-6
Corner of Railroad Avenue and Wilson Highway
Millsboro
Sussex County
Delaware

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D. C. 20240

HISTORIC AMERICAN ENCINEERING RECORD

Houston-White Company Mill and Basket Factory

HAER DE-6

Location:	Millsboro, Delaware. Quad: Millsboro UTM: 18.474560.427800
Date of Construction:	1905, with major additions
Present Owner:	Houston-White Company
Significance:	The history of the Houston-White company demonstrates how changes in agricultural production significantly altered the produce basket industry in the late 19th and early 20th centuries.
Historian:	James M. Edmonson, 1976.

In documenting the basic process of produce basket making as practiced by the Houston-White Company, it is possible to investigate both the general mechanization and the changes in agricultural production that significantly altered the industry in the late 19th and early 20th centuries. In addition, the mill and adjacent yards of the Houston-White Company typify an ad hoc industrial architecture, and renovations were made to existing structures to accomodate expanded production facilities. The Houston-White Company was the last large basket factory in Delaware, and, although the mill and basket factory are empty shells, devoid of any basket making machinery, structural evidence allows one to trace the process flow of basket manufacture as practiced on the site.

The Development of the Delaware Basket Industry in the 19th Century

The southward expansion of the Delaware Railroad in 1856 and of the Delaware, Maryland, and Virginia Railroad in the 1870s opened new markets and made possible the growth of an important agricultural industry in Sussex County, Delaware. [1] The fruits and vegetables grown in the area were transported directly to distant markets in Baltimore, Philadelphia and New York, or shipped to canneries and evaporators for processing within Delaware.[2]

Standardized wooden containers--either boxes, crates, or baskets--protected the produce during shipment and made handling easier. Wood was traditionally favored as a material for containers, for a variety of reasons. It was plentiful, cheap, easily worked, resilient, and durable. [3] Veneer basket manufacture utilized large amounts of loblolly pine, poplar, gum, elm or sycamore wood, all of which grew abundantly in the timberlands of Sussex County. [4] In the 1870s, a thriving peach industry stimulated the Kent County towns of Felton, Milford, and Smyrna into becoming centers of basket production. [5] The Smyrna Basket Works employed over 100 persons and was capable of producing almost 1,000,000 baskets in a season, a capacity, however, which could handle only 1/3 of the nearly 3,000,000 baskets of peaches shipped out of Delaware in 1879. [6]

The techniques of basket manufacture changed rapidly during the late 19th century. Traditionally, baskets had been made by the time-consuming process of hand weaving wood splints, osier, or rattan. However, during the 1850s and 1860s, techniques were devised incorporating new construction design and mechanical manipulation of a variety of materials. [7] During the 1870s, the wood veneer "Beecher" basket with a solid round or square bottom became the industrial standard. [8] Developed in Connecticut, the Beecher basket made its way south to Delaware through advertisements in agricultural periodicals and, more importantly, by the movement of skilled personnel within the industry. For example, in 1876, T. H. Camp and C. A. Blair

of Connecticut and New York respectively established the Milford Basket Company which was considered a model for the basket industry in Delaware. [9] An 1880 account observed,

> The factory. . ., is supplied with specially devised machinery for the manufacture of strawberry baskets and crates, 300,000 to 1,000,000 of which are turned out in the course of a year, the greater portion being shipped to either the cities of Baltimore, Philadelphia, and New York. [10]

The most important machine developed by the industry was the veneer lathe, a mechanism which produced thin sheet wood used in basket staves and bands. [11] By the 1880s, a number of these lathes were on the market. [12] The real problem in basket production was never one of material or labor costs, but simply keeping up with the increase in agricultural production. Southern Delaware boomed in the production of fresh fruits and vegetables during the last part of the 19th century, and by 1900 Sussex County was the nation's leader in strawberry production for a single county. [13]

Due to the perishable nature of these foods, it was imperative that they be packed and shipped before spoilage occurred. To do so required an ever larger number of baskets and crates. During the late 19th century, these containers were "recyclable." They were returned to the packers and used many times. The situation of a nearby New Jersey fruit grower in 1874 illustrates the system common to the produce industry at the time:

> Although both baskets and crates are returned by the vendors as soon as emptied, and thus a continuous repetition of their use kept up, it is found necessary, for the short time required in transit, to keep 1,000 crates on hand and 60,000 baskets to do the marketing from this establishment. [14]

In Delaware, the problem posed by the shortage of produce containers was met by the establishment of several new basket factories between 1890 and 1910. In 1890, only three factories of significant size were recorded by the U. S. Census, and pieceworkers outnumbered factory-employed wage earners almost two to one. [15] By 1909, the picture was quite different. Ten factories in Delaware employed 420 wage earners, and the value of products had multiplied six fold. [16] It was this period that witnessed the establishment and growth of the Houston-White Company.

The Houston-White Company And the 20th Century Basket Industry in Delaware

When William J. P. White arrived in Millsboro, in the early 1890s to work for Henry A. Houston as a clerk in his general store, he was already familiar with the manufacture of baskets and crates for agricultural produce. [17] At the age of fourteen, he had begun

working in John T. Long's general store and basket and crate shop in Frankford, Delaware, seven miles from Millsboro. [18] In 1893, Houston, who had relatives already involved in lumbering, sawmilling and box manufacturing, offered White a partnership in his business, creating the firm of Houston and White. [19] Together, they established a sawmill and basket and crate factory in Millsboro, while they continued to operate the general store. [20] Within a few years, the expanding company purchased the Houston & Perry box factory which was operated by Charles B. Houston and John Perry, and which employed 20 people.[21] Much of the basket making was done as piecework by local residents in their homes. [22]

In 1905, when the firm was incorporated as the Houston-White Company, its basket making was still of secondary importance, [Photo DE-6-34] but rapidly gaining greater significance.[23] The company offered a variety of wooden produce containers, including quart baskets, trays, and crates for berries, 5/8 and 1/2 bushel baskets for larger fruit and vegetables, and box shooks (pre-cut boxes bound in bundles to be assembled by the purchaser.) [24]

In 1917, William J. P. White assumed the presidency of the Houston-White Company. Under his management, the company prospered. In 1909, as manager, he engineered real estate investments, purchasing timber land throughout Sussex County, and acquiring the Stantonsburg Lumber Company of Stantonsburg, North Carolina. [25] Sawmill machinery and equipment from Stantonsburg was shipped north to Millsboro and installed in the company mill in 1920, greatly expanding the production capacity of the parent company. [26] At that time, J. Reese White bought out Henry A. Houston and entered the firm with his father.

By 1918, the Houston-White Company had become the second largest producer of baskets in the state of Delaware, exceeded only by the Marvil Package Company of Laurel. [27] The reasons for this rapid development of the Houston-White Company included improved transportation, an expanded market for their products, and the mechanization of basket production.

Transportation played a key role in the company's successful development. Rapid shipment of timber and finished products to and from Millsboro was aided by the Philadelphia, Wilmington and Baltimore Railroad which ran beside the mill. As early as 1917, a railroad siding ran directly into the mill building. [28] The motor truck likewise became a key part of the company's transportation system after 1920. Trucks carried cut timber from "woods mills" operated by the company in Sussex County and finished baskets throughout Delaware and the surrounding Delmarva region. [29]

Delaware's agricultual output expanded considerably during the 1920's, and fruits and vegetables which required wood containers for transport, especially strawberries, tomatoes, canteloupes, peaches

and apples were very important crops. In 1927, a peak year for Delaware's basket industry before the depression of the 1930s, the Houston-White Company's annual sales exceeded $243,300, approximately one-fourth of Delaware's total basket production. [30]

The Houston-White Company improved its basket-making machinery in the early 1920s. To supplement its veneer lathe and basket forms, the company purchased a variety of special-purpose machines, tripling the amount invested in machinery and equipment between 1921 and 1930. [31] This new machinery increased both rate and capacity of production at the Millsboro factory.

This new mechanization also improved industry-wide standardization, a long-standing problem in packaging. In 1911, a packaging industry commentator complained,

> Unfortunately, our whole system of packages, like our system of weights and measures, is characterized mainly for its lack of uniformity. There can be no doubt that a federal law fixing uniform weights and measures would be a great aid in bringing about needed reforms in all kinds of packages. [32]

The hoped-for legislation came a few years later with the U. S. Standard Container Act of 1916. [33] As long as manufacturers of basket-making machines adhered to the Government standards, basket manufacturers, like the Houston-White Company, using the newly developed machinery, could be generally confident that their packages would pass Government inspection.

The depression years hit the Houston-White Company hard. Sales dropped from the pre-depression high of $303,409 in 1929 to a low of $167,732 in 1932. [34] The company responded to these losses by entering the wholesale produce market, selling apples, sweet potatoes, and strawberries. This venture in agricultural marketing helped carry the company throught the worst years of the depression. It was both an additional source of income and a means to maintain production of baskets in the company mill. Another market for wood containers was found in the production of crates for the Sussex County Christmas decoration industry. Holly wreaths and other decorations were made on a part-time basis by Sussex County residents, and Houston-White supplied packaging for shipment to out-of-state markets. [35]

In the midst of the depression, the leadership of the Houston-White Company changed hands. William J. P. White, whose business acumen undoubtedly aided the successful development of the company, died in 1936, and he was succeeded as president of the firm by his son, J. Reese White. [36] Sales of baskets and lumber began to pick up after 1935 and the company enjoyed renewed prosperity in the pre-war years. To expand the market for its products,

the Houston-White Company established a subsidiary firm, the Baltimore Package Company, which marketed its products in Baltimore, Maryland. [37] When the war drained Millsboro of its young men, the Houston-White Company met the labor shortage in 1944 and 1945 with German prisoner-of-war labor. [38] [Photo DE-6-35]

Among the veterans returning to Millsboro to resume work at the Houston-White Company was J. Reese White, Jr., the third generation of the White family to enter the company. [39] With an eye toward future prosperity, the Whites updated production facilities, particularly with the installation of new steam tanks to remove bark from timber used for veneer packaging. [40]

Although the market for wood containers seemed promising in the late 1940s, the future of the Houston-White Company was in jeopardy. Four factors brought about the demise of basket manufacture in Delaware. First, a shift in Delaware's agricultural economy, particularly the decline of produce requiring wood containers; second, severe price competition among basket and crate manufacturers which cut profits; third, the depletion of Delaware's prime timberlands; and fourth, the development of alternative packaging materials and new consumer packaging design.

The importance of agricultural produce containers manufactured by the Houston-White Company declined in the period from 1929 to 1945. Between 1929 and 1939, the value of fruit and vegetables produced in Delaware declined by nearly two-thirds, while the poultry industry grew almost four fold. [41] The trend accelerated from 1941 to 1945, when the poultry industry tripled the value of its output. [42] This represented a decline in the importance of the agricultural produce that used the Houston-White Company's containers for marketing, and an increase in demand for container products that the company did not offer. Houston-White did not diversify its production to include the type of containers required by the new poultry industry of Sussex County.

Possibly as a result of this declining demand, the early 1950s was a time of severe price competition between the basket manufacturers of Delaware and nearby Maryland. [43] The prime technique used to undercut competitors was to offer potential buyers a "discount." When discussing this problem, members of the American Veneer Package Association denied that they were offering discounts, but they did so nevertheless. This was a means of beating the competition, but it also meant a severe reduction in profits.

Delaware's forest resources were being depleted by the early 1950s, and no one seemed to have a clear notion of how serious the results of this depletion would be. In 1955, the State Forester warned,

> In the case of Delaware, whose terrain and rich soils lend themselves to rapid exploitation at moderate costs, it appears that forest evictions from the land is generally at a rate disproportionately greater than other major land classes. [44]

Within a few years, the State Forester lamented the rapid depletion of Delaware's forests,

> . . .Statewide, the bulk of remaining growth is young sawtimber and pole timber that, while it may be producing its full capacity of woody growth, is failing miserably in the production of high quality commercially desirable wood crops that will be so sorely needed by present and succeeding generations. [45]

Without the advantage of proximity to productive timberlands in Sussex County, the Houston-White Company faced increasingly higher costs for materials and transportation.

New trends in the development of packaging materials and consumer oriented package design also threatened the Houston-White Company. Early in the present century, it was realized that proper packaging enhanced product marketability. In discussing guidelines for package development, one industry observer put forth the following conclusion,

> . . .the best package is one that is best calculated to protect goods in which they are shipped and at the same time permit them to be best displayed in order to bring their full market value when put on sale. A fine picture deserves a fine frame; so does good fruit of produce deserve a good package, for the package is to the latter what the frame is to the former. [46]

The commercial freezing of vegetables had begun in Oregon in the early 1930s, and canning had gained importance as a means of preserving and transporting fruits and vegetables. [47] Most modern plastics used in food packaging were developed in the 1930s and had a profound influence on the possibilities of package design and construction. [48] These developments displaced wood as packaging material and reduced Delaware's importance as an early-season producer of fruits and vegetables. [49] Consumer oriented packaging, particularly pre-packaging in consumer quantities, became standard in the 1950s.

All these changes in food packaging and marketing diminished the demand for products manufactured by the Houston-White Company. Finally, in 1960, the company closed the mill and sold the basket making machinery. [50] Lumber and millwork continued until late 1974, when the company ceased all operations.

The Houston-White Company had grown with the fortunes of southern Delaware's agricultural economy. When this sector changed its orientation in the mid-20th century, the Houston-White Company did not, or could not,

follow suit. As the last manufacturer of baskets to close its mill, the closure of the Houston-White Company signalled the end of Delaware's basket making industry.

Process Description

The following process description relates the manner in which baskets were made by the Houston-White Company in the early 1950s, the firm's final years of production. [51] From its establishment in 1893, Houston-White altered and expanded its production facilities a number of times, incorporating new basket making machinery and making frequent additions to the original mill building and the yards in Millsboro. Because the firm produced a wide variety of containers, general lumber, and millwork, it is not possible to trace all the processes in detail. This process description will focus on a single phase of production--the manufacture of 16 quart solid bottom peach baskets (also called hampers) from raw material to finished product.

The first step in the production of baskets was finding the appropriate timber, generally loblolly pine, gum, or poplar. Houston-White owned timber land throughout Sussex County and in the vicinity of Stantonsburg, North Carolina. Timber was also purchased under contract with local sawmills and "woods mills," which were portable sawmills taken out to the source of timber. In either case, it was necessary to cut the timber and transport it to Millsboro by rail and truck, or, in the earlier years of the firm, by mule and wagon. Because the high quality veneer timber was always of interest to the company, numerous timber tracts were operated simultaneously.

Veneer timber was cut to 40-44 inch lengths. Timber had to be at least 10 inches in diameter because anything smaller would be unprofitable; the heartwood of a log was not usable for veneer, so it was desirable to cut timber that would produce a considerable amount of veneer before the heartwood was reached. Timber was best turned on the veneer lathe shortly after cutting. While still loaded with sap, the wood sheared evenly without splitting or cracking.

When the timber arrived in Millsboro, it was loaded on a trailer pulled by a small tractor and stacked throughout the yard. Off and on loading was done with a mobile yard crane. Logs to be converted to veneer were transported to the steam tank building on the south side of the yard. [Photos DE-6-10, 11, 12] Steaming loosened the bark so it could be easily stripped, and it kept the wood moist for ease in cutting on the veneer lathe. Steam was piped into the tanks from the boiler in the main mill building. Logs were lowered into the steam tanks by a motor-driven hoist which ran on an overhead I-beam. Bark was stripped off by hand with an axe, and later burned in the boiler.

Stripped logs were transported by timber carts back to the mill building for processing [Photos DE-6-1, 14, 21]. Carried by a 1/2 ton electric hoist, the log was positioned between the log-clutching spindles of a 66-inch electric powered veneer lathe. Bark remains were cleaned off with a hand-held wire brush as the log rotated on its axis. When the log was clean, the operator started the cutting action, bringing the log into contact with the knife.

Depending on the type of basket material to be produced, the veneer lathe was set up in one of two fashions. In order to make solid bottom basket staves, a "back roll" was used in conjunction with the knife which sheared the veneer. The back roll scored the sheet of veneer so it could be easily broken by hand into individual staves. Without the back roll, the lathe produced a smooth continuous sheet of veneer which was then run through a veneer clipper.

The veneer clipper cut veneer into strips. Depending upon the machine set-up, stacks of veneer sent through the clipper on a continuous belt conveyor would come out in widths suitable for use as bands, hoops, or for web bottom basket staves. In either case, with or without the back roll, the heartwood of the log cut on the veneer lathe was used to make lath and crates.

The solid bottom basket made from the veneer splints was produced in four basic sizes: the standard bushel basket, the bushel hamper, the 5/8 bushel tomato basket, and the 16 quart peach basket. Four basic components made up this type of basket: a solid wood bottom, veneer staves, and both straight and coiled (dyed and undyed) veneer bands.

Basket bottoms were made in a section of the mill on the second floor [Photo DE-6-22]. Lumber was planed on the ground floor, transferred upstairs, and cut into sections approximately as long as the diameter of the basket bottom and half as wide. Two sections of board were then assembled edge to edge and fastened on a corrugated fastener machine, forming a roughly square piece from the two sections. The square was then turned on a basket bottom machine and transferred to the first floor "peach hamper room" by conveyor [Photo DE-6-17].

The scored sheet of veneer from the lathe was broken into individual staves which were loaded on a pallet [Photo-DE-6-13]. The pallet was transferred to the peach hamper room by hand lift truck and staves were offloaded near the peach basket making machine. Scrap was culled out and good staves stacked beside the basket making machine.

Bands of veneer cut on the clipper were also loaded on pallets and transferred to a section of the peach hamper room where they were culled for scrap, a portion of the load stacked beside the basket making machine. The remainder of the load was divided, part immersed in a dye tank in the peach hamper room and the rest coiled into hoops

on a hand operated hoop coiler. Both dyed and undyed bands and stapled hoops were transferred to the basket making machine and placed within reach of the machine operator.

The machine operator now had all the requisite materials for making a basket--staves, bottom, bands (both dyed and undyed) and coiled hoops. Staple wire was automatically fed into the machine in proper sequence.

Bands were fed into each of the three staple heads with one dyed band placed in position corresponding to the basket mouth. The hoop was placed on the basket form so that when the machine was activated it would become the inner hoop of the basket mouth. The basket bottom was fitted in place on the basket form, resting on a post which ran through a hole in the center of the basket bottom.

Making baskets or hampers on this type of machine required considerable manual dexterity. The operator had to hand feed the staves into the basket making machine, placing them on the form as it rotated with an intermittent motion. The staves rested on pawls or "fingers" and were carried by the form under the stapling heads, where hoop, bands, and bottom were stapled to the staves. The finished basket was removed, and the process began again. Baskets were stacked by the dozen and carried from the mill.

Drying was the last step before a basket was ready to be shipped. This was important, because the wood was damp when worked. Nested by the dozen, baskets were transferred from the mill to open drying sheds and stacked singly, row upon row, with ample space between them to permit ventilation [Photo DE-6-9]. In 1950, a steam dry house with mechanical belt conveyor was installed in the Houston-White yard. This improvement freed the company from dependence upon the weather and sped the process of drying.

Once dried, the baskets were again nested and loaded onto modified stake trucks for shipment [Photo DE-6-45] throughout Delaware and as far as Virginia. Baskets sold to customers such as Austin Supply Company in Boynton Beach, Florida, or Libby, McNeill & Libby in Chicago, were shipped by rail.

Finally, there are two aspects of Houston-White's production that are of interest: handling of material and fuel for power.

The biggest problem in the manufacture of baskets was the movement of materials. For each step in the process, materials had to be conveyed from one section of the mill or yard to another. Sometimes belt conveyors aided materials handling, but this movement often involved much hand labor.

Power for machinery was mainly from overhead shafting that drove belting. Some machinery was powered independently by electric motors, but the bulk of it depended on the system of shafting that

ran throughout the mill. A Corliss-type steam engine drove the shafting. Wood scrap from every woodworking machine was conveyed by belting and a blower system to collectors over the boiler room. From there, scrap could be fed directly into the main 250-horsepower boiler [Photo DE-6-19]. In this manner, the Houston-White Company never had any problem obtaining fuel to power the steam engine which drove the bulk of the machinery.

FOOTNOTES

[1] Harold Hancock, "Agriculture in Delaware," in Delaware: A History of the First State, ed., J. Clay Reed (3 vols, New York, 1957), Vol. I, pp. 373-378.

[2] Ibid., p. 386.

[3] Griffin, Roger C., and Sacharow, Stanley, Principles of Package Development (Westport, Connecticut, 1972), pp. 31-33.

[4] J.R. White, Jr. interview held in Millsboro, Delaware, July 1975.

[5] In 1870, Kent County had four basket making establishments, employing a total of 76 persons; Sussex County had no listing of basket manufacturers. See U. S. Census Office, 9th Census, 1870. Census Reports. The Statistics of Wealth and Industry of the United States. . . (3 Vols.; Washington, 1872), Vol. 3, pp. 412-413. Commercial producers of baskets did not appear in considerable number in state directors until the early 1870s.

[6] Edwards, Richard, Industries of Delaware (Wilmington, 1880), p. 35.

[7] American hand basket making is discussed by Eliot Wigginson in the Foxfire Book (Garden City, 1972), pp. 115-127, and also by John McClees, "Baskets and Their Making," Antiques Magazine Vol. XIX, No. 5 (May 1931), pp. 383-385. Both discuss process and include illustrations of techniques and products. An interesting solution to the mechanization of basket manufacture was offered by Franklin H. Brown, Chicago. Brown designed and patented basket making machinery that attempted to imitate the hand manipulations of the basket weaver. See description and illustration in Dictionary (3 vols., Boston, 1876) Vol. III, p. 244.

[8] For an account of the development of American veneer baskets, see Lawrence A. Johnson, "Battle of the Baskets," The Chronicle of the Early American Industries Association, Vol. XV, No. 3 (June 1962), pp. 31-33, and No. 4 (December 1962), pp. 42-25.

[9] Edwards, p. 161.

[10] Ibid., p. 161.

[11] Traditionally, veneer was sawn from timber by hand, producing 6 to 8 veneers to an inch. The next development in the production of veneer, thought to be of Russian origin, was known as a planing machine. The planing machine functioned much like a veneer

lathe, producing a continuous sheet of veneer. It was favored for cutting expensive hardwood and ivory because it wasted little material. In 1806, Isambard M. Brunel, the famous English mechanic, developed a successful circular veneer saw which cut 8 to 15 veneers to an inch. See Charles Tomlinson, Cyclopaedia of Useful Arts. . . (3 vols., London, 1866), Vol. II, pp. 423-424; 797-799. For discussion and illustration of a variety of veneer saws, cutters, and lathes, see Knight, Vol. III, pp. 2699-2702.

[12] The Woodworker, Vol. V, No. 10 (December 1886), carried advertisements for veneer lathes produced by Coe & Wilkes, Painesville, Ohio (p. 2); DeQuoin Iron Works, DuQuoin, Illinois (p. 3); Farrel Foundry & Machine Company, Ansonia, Connecticut (p. 25); and Trevor & Company, Lockport, New York (p. 26).

[13] U. S. Census Office, Census Reports. . .Twelfth Census of the United States taken in the year 1900 (Washington, 1902), Vol. VI, Part II, p. 609.

[14] The Cultivator and Country Gentleman, Vol. 39, 6 August 1874, p. 502.

> Not until greater mechanization in the 20th century considerably reduced production costs were wooden containers looked upon as disposable and the consumer burdened with the costs of both the container and its contents.

[15] U. S. Department of the Interior, Census Office, Report on the Manufacturing Industries of the United States at the Eleventh Census: 1890 (Washington, 1895), Part I, pp. 124-125.

[16] U. S. Department of Commerce, Census of Manufactures: 1914 (Washington, 1918), Vol. I, p. 225.

[17] Delaware State Directory for 1888 (Wilmington, 1888), p. 87, and Reed, Vol III, p. 143.

[18] Reed, Vol. III, p. 143.

[19] Delaware State Directory for 1874-1875 (Wilmington, 1874), pp. 468-469, and Delaware State Directory for 1888 (Wilmington, 1888), pp. 222-223 show the transition from farming to lumber and sawmilling by members of the Houston family.

[20] Reed, Vol. III, p. 143.

[21] W. B. Atkins July 1975 interview and J. R. White, Jr., July 1975 interview.

[22] W. B. Atkins July 1975 interview.

[24] "Invoice taken January 1, 1908." Houston-White Company Inventories (1905-1928), in possession of J. R. White, Jr.

[25] "Invoice taken January 1, 1910." Houston-White Company Inventories (1905-1928), in possession of J. R. White, Jr.

[26] The Stantonsburg Lumber Company burned in 1920. Before that, Stantonsburg proved to be an excellent training ground for the younger executives of the Houston-White Company. George S. Williams, who joined the firm before the acquisition of the Stantonsburg Lumber Company, was sent to North Carolina to manage the subsidiary firm. J. R. White, Sr., son of William J. P. White, also learned about the lumber business in Stantonsburg. J. R. White, Jr. July 1975 interview and Richard Carter, "Houston-White Company brought Millsboro fame," Delmarva News , 6 March 1975, p. 2.

[27] Thomas Publishing Company, Thomas' Register (New York, 1918), pp. 390-391 and "Inventory taken December 31, 1918," Houston-White Company Inventories (1905-1928) in possession of J. R. White, Jr.

[28] "Inventory Summary December 31, 1917," Houston-White Company Inventories (1905-1928) in possession of J. R. White, Jr. "Invoice of December 31, 1919" indicates no trucks owned by Houston-White Company; "Invoice of December 31, 1920," records the purchase of two trucks by the firm. Houston-White Company Inventories (1905-1928) in possession of J. R. White, Jr.

[29] J. R. White, Jr. July 1975 interview.

[30] "Merchandise Sales December 31, 1927," Houston-White Company Account Ledger (1918-1955) in possession of J. R. White, Jr.; and U. S. Bureau of the Census, Fifteenth Census of the United States Manufactures: 1929 (Washington, 1933), Vol. II. Reports by Industries, p. 485.

[31] "Invoice December 31, 1920," indicates the value of machinery, primarily for millwork and general sawmilling, at $22,800; the "Machinery and Equipment" account for December 1931 lists the value of machinery, particularly basket making machinery, at $63,999. Houston-White Company Inventories (1905-1928) and Houston-White Company Account Ledger (1918-1955), in possession of J. R. White, Jr.

[32] Seibels, William T., Produce Markets and Marketing (Chicago, 1911), p. 91.

[33] The Statutes at Large of the United States of America from December 1915 to March 1917. . . (Washington, 1917), Vol. XXXIX, Part I, pp. 673-674.

[34] "Merchandise Sales 31 December 1929," and "Merchandise Sales 31 December 1932," Houston-White Company Account Ledger (1918-1955), in possession of J. R. White, Jr.

[35] Delaware State Forester, Annual Report of the State Forester to the State Forestry Commission for the Fiscal Year (July 1, 1934 to June 30, 1935) (Dover, Delaware, 1935), pp. 26-27.

[36] Carter, p. 2.

[37] Ibid.

[38] Carried in trucks daily in trucks to Millsboro and returned to their camp in Georgetown, Delaware, the prisoners of war enabled the Houston-White Company to keep pace with the wartime demand for produce containers and other wood products. When the conflict ended, the Germans left Houston-White and were shipped home. Carter, p. 2.

[39] Reed, Vol. III, p. 513.

[40] "New Steam Tank Account," Houston-White Account Ledger (1918-1955), in possession of J. R. White, Jr.

[41] U.S. Department of Commerce, Bureau of the Gensus, Sixteenth Census of the United States: 1940 (Washington, 1942), Vol. II, Part II, p. 6.

[42] Reed, Vol. I, pp. 406-407.

[43] J. R. White, Jr. July 1975 interview.

[44] Delaware State Forester, Annual Report of the State Forester to the State Forestry Commission for the Fiscal Year (July 1, 1954 to June 30, 1955), (Dover, Delaware, 1958), p. 5.

[45] Ibid.

[46] Seibels, p. 90.

[47] Sacharow, Stanley, and Griffin, Roger C., Food Packaging (Dover, Delaware, 1933), pp. 92-95.

[48] Ibid., pp. 6-8.

[49] Delaware, Report of the Commission on Packing and Marketing Delaware Food Products (Dover, Delaware, 1933), pp. 92-95.

[50] Carter, p. 2.

[51] The Houston-White Company mill no longer houses basket making machinery. Therefore, the process description relies on the knowledge and experience of a number of persons who worked for the firm and other individuals who are familiar with basket making machinery.

The following Millsboro residents provided valuable information on the operation of the Houston-White Company: J. R. White, Jr., last president of the firm; William A. Carter, basket production supervisor during the post-war period; Joseph Bramble, master machinist of the firm from 1934 to 1974 when Houston-White closed; Mrs. Elwood Coffin, who made baskets from 1936 to 1959; William Blaine Atkins, employee of the firm ca. 1905 to 1907; and Mrs. R. G. Lynch, secretary of J. R. White, Sr.; and J. R. White, Jr.

Information concerning the machinery and process was made available by the following sources: the Rapp Package Company of Carpentersville, New Jersey, which was visited to observe the process of basket making as practiced today by that firm in a fashion very similar to that of Houston-White; Walter F. Newhouse of Benton Harbor, Michigan, who joined the Saranac Machine Company in the early years of that firm's production of basket making machines, ca. 1915-1917, and stayed with Saranac until the demise of the firm in the 1960s; Dick Ullisch, who worked for Saranac and now fabricates replacement parts for machines in Benton Harbor, Michigan; Dieter Pollman of the Merritt Engineering and Sales Company, Inc., of Lockport, New York, which made veneer lathes employed by the Houston-White Company.

Finally, Dick Carter, reporter for the Delmarva News, who was particularly helpful in providing valuable information about the history of the Houston-White Company and who helped make invaluable contacts during the course of research.

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